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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,877	12/09/2003	Darren A. Janzig	1023-335US01	4792
28863 7590 08/03/2009 SHUMAKER & SIEFFERT, P. A. 1625 RADIO DRIVE SUITE 300 WOODBURY, MN 55125				
EXAMINER ALTER, ALYSSA MARGO				
ART UNIT		PAPER NUMBER		
3762				
NOTIFICATION DATE		DELIVERY MODE		
08/03/2009		ELECTRONIC		

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/730,877
Filing Date: December 09, 2003
Appellant(s): JANZIG ET AL.

Jessica Kwak
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 9, 2009 appealing from the Office action mailed December 9, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5674260	Weinberg
5144946	Weinberg et al.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-15 and 17-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 recites the limitation of a "second profile of the housing". However, it is unclear what constitutes as a "second non-linear profile of the housing" since there is insufficient antecedent basis for this limitation since the specification does not describe a "second profile". Further clarification is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-7, 8-9, 15, 17-19, 20-22, 29, 31-32 and 34-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Weinberg et al. (US 5,144, 946). Weinberg et al. discloses an implantable medical device with a housing that contains a double-sided substrate (i.e. a circuit board) that has a plurality of integrated components on one side of the circuit board, see figure 4A and a plurality of discrete components on the other side of the circuit board, see figure 4B.

In regards to the integrated components, Weinberg et al. discloses that figure 4A has "electronic components 56 (including, diodes, transistors, and other integrated circuits)" (col. 5, lines 40-42). In regards to the discrete components, Weinberg et al. discloses that figure 4B has "tantalum capacitors 57" (col. 5, line 45).

Furthermore, as depicted in figure 4A and 4B, the electrical components are arranged in a non-linear profile with respects to second non-linear profile of the housing. Both the discrete and integrated components vary in height and since they are made to fit in the housing, and the housing includes a non-linear rounded corners (i.e. non-linear profile), the components are arranged in a first predetermined non-linear profile "based" on a second non-linear profile.

As to claims 3-5 and 22, Weinberg et al. depicts the telemetry coil 59 encircling the circuit board in figure 4B and located in a different plane than the circuit board.

As to claim 6, when the medical device is implanted within the body there will be a surface of the circuit board as well as a second plane that will necessarily be closer to the cranium with respects to the rest of the medical device.

As to claim 9, as depicted in figure 4A, the height of the components increase from the edge of the board to the center of the board.

As to claim 15 and 17-18, as seen in figure 2, the feedthroughs 24 are located at a non-parallel and non-perpendicular angle relative to a major surface of the housing.

As to claim 19, figure 2 also depicts a battery 16 located within a separate housing from the discrete and integrated components.

As to claims 20-21, the functional language and introductory statement of intended use of claims 20-21 have been carefully considered but are not considered to impart any further structural limitations over the prior art. Since Weinberg et al utilizes an implantable stimulation device as claimed by the Applicant, Weinberg et al. is therefore capable of being used as an implantable neurostimulator to stimulate the brain. In addition nothing prevents Weinberg et al. from utilizing the implantable stimulation device to function as a neurostimulator and stimulate the brain. Therefore, the implantable stimulation device is capable of being utilized as an implantable neurostimulation device to stimulate the brain.

Furthermore, as to claim 21, It has been held that the recitation that an element is "adapted to" perform a function in not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

2. Claims 1, 9-10, 15, 18-21, 32 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Weinberg (US 5,674,260). Weinberg discloses an "electronics package 30 is a hybrid circuit structure containing various integrated circuits which are

vertically stacked at different positions to create a multi-level circuit structure" (col. 3, lines 15-18). Figure 3 displays "a group of integrated circuits 34, which may be random access memory (RAM) chips, mounted atop a platform 36. Underneath the platform 36 are additional electronic components (not shown) which are mounted to a substrate 38 and which communicate with the integrated circuits 34. An additional integrated circuit 40 is mounted directly to the substrate 38 and is not covered by the platform 36" (col. 3, lines 19-26). The examiner considers the substrate 38 and the platform 36 to be a circuit board.

The integrated circuits 34 are mounted on a platform, which the examiner considers to be part of the circuit board, compared to integrated circuit 40, they are in a non-linear profile. Additionally, they are made to fit in the housing wherein the housing includes a non-linear rounded corners (i.e. non-linear profile), the components are arranged in a first predetermined non-linear profile "based" on a second non-linear profile.

Since Weinberg discloses on col. 3, lines 21-24, "underneath the platform 36 are additional electronic components (not shown) which are mounted to a substrate 38 and which communicate with the integrated circuits 34". The examiner considers the additional electrical components 72, as depicted in figure 6, to be discrete components since Weinberg has discloses the additional components communicate with the integrated circuits and thus are not integrated circuits themselves.

As to claim 9, the height of the integrated circuits increase from an edge towards the center. A replication of

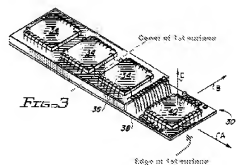
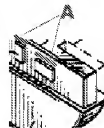


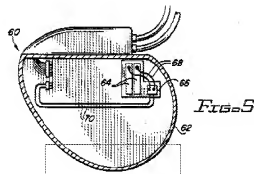
figure 3 is included and displays the integrated circuit 40 on the edge of the first surface is at a smaller height than the integrated circuit 34 towards the center of the first surface.

As to claim 10, in the indicated portion of figure 6 at right, the discrete components 72, are further magnified. The highlighted portion indicates the two heights of components 72. Labeled as "A", the heights decrease from the edge of the second surface of the circuit board towards the center of the circuit board.



As to claims 15, 18, 32-33 and 35, figure 5 displays "the resistor board 68 in turn communicates with an electronics package (not shown) via wires 70"(col. 4, lines 24-26). Therefore, it follows that there is a feedthrough located in the electronic package 30 to enable wire connection to the resistor board via wires 70.

Furthermore, as seen in the replication of figure 5 depicted on the right, the box placed around a portion of the implantable medical device indicates a "major surface of the housing" that is at a "non-parallel, non-perpendicular angle" from the feedthrough.



As to claim 19, the battery 74 is depicted in figure 6.

As to claims 20-21, the functional language and introductory statement of intended use of claims 20-21 have been carefully considered but are not considered to impart any further structural limitations over the prior art. Since Weinberg utilizes an implantable stimulation device as claimed by the Applicant, Weinberg is therefore

capable of being used as an implantable neurostimulator to stimulate the brain. In addition nothing prevents Weinberg from utilizing the implantable stimulation device to function as a neurostimulator and stimulate the brain. Therefore, the implantable stimulation device is capable of being utilized as an implantable neurostimulation device to stimulate the brain.

Furthermore, as to claim 21, It has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 10-14 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberg et al. (US 5,144, 946). Weinberg et al. discloses the claimed invention except for arrangement of discrete components. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the positioning of the discrete components, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70 (see MPEP 2144.04). Furthermore, rearranging of the discrete components

would provide the predictable results of having a narrower profile of the medical device. Such a modification is well known in the art since it occupies less space in the patient and is less noticeable once implanted.

As to claim 11-12 and 25-26, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the size of the housing and the components as taught by Weinberg et al., since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art [*In re Aller*, 105 USPQ 233].

Furthermore, small components would provide the predictable results of having a narrower profile of the medical device. Such a modification is well known in the art since it occupies less space in the patient and is less noticeable once implanted.

As to claims 13-14, Weinberg et al. discloses the claimed invention except for the circuit board comprising flex tape. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the circuit board with flex tape, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416 (See MPEP 2144.07). Furthermore, modifying the system with flex tape would provide the predictable results of arranging the components in the medical device to have substrate capable of conforming to the interior dimensions of a medical device. Additionally a flexible circuit board would enable the circuit board to be concave in at least one axis.

2. Claims 11-14 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberg (US 5,674,260). Weinberg discloses the device as claimed but fails to teach the specific thickness for the housing and components. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the size of the housing and the components as taught by Weinberg, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art [*In re Aller*, 105 USPQ 233]. Furthermore, small components would provide the predictable results of having a narrower profile of the medical device. Such a modification is well known in the art since it occupies less space in the patient and is less noticeable once implanted.

As to claim 14, Weinberg discloses the claimed invention except for the circuit board comprising flex tape. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the circuit board with flex tape, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416 (See MPEP 2144.07). Furthermore, modifying the system with flex tape would provide the predictable results of arranging the components in the medical device to have substrate capable of conforming to the interior dimensions of a medical device. Additionally a flexible circuit board would enable the circuit board to be concave in at least one axis.

3. Claims 8 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberg et al. (US 5,144, 946) in view of Bardy et al. (US Patent Publication 20020042634 A1). Weinberg et al. and Weinberg discloses the device substantially as claimed but fail to teach a curved housing. Bardy et al. discloses a curved housing to better fit the contours of the patient's body once implanted. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the housing as taught by Weinberg et al. or Weinberg with the curved housing as taught by Bardy et al. in order to provide the predictable results of ensuring the medical device will fit the contours of the human body once implanted.

(10) Response to Argument

The Appellant argues that there is sufficient description of a "second non-linear profile of the housing". However, since there is no description or indication in the specification of what the Appellant considers the "second non-linear profile", i.e. which axis or orientation, the examiner maintains that the limitation is unclear and lacks sufficient antecedent basis.

The Appellant also argues that Weinberg '946 does not disclose or suggest an IMD that comprises integrated circuits or discrete components that are arranged on a first or second surface of a circuit board to substantially conform to a pre-determined non-linear profile that is based on a second non-linear profile of the housing.

However, as depicted in figure 4A and 4B, the electrical components are arranged in a non-linear profile with respects to second non-linear profile of the housing. Both the discrete and integrated components vary in height and since they are made to

fit in the housing, and the housing includes a non-linear rounded corners (i.e. non-linear profile), the components are arranged in a first predetermined non-linear profile "based" on a second non-linear profile. Additionally, the integrated circuits 34 are mounted on a platform, which the examiner considers to be part of the circuit board, compared to integrated circuit 40, they are in a non-linear profile. Additionally, they are made to fit in the housing wherein the housing includes a non-linear rounded corners (i.e. non-linear profile), the components are arranged in a first predetermined non-linear profile "based" on a second non-linear profile.

Furthermore, since the examiner maintains that the specification does not provide sufficient antecedent basis or explanation of what is considered to be the second non-linear profile, the components are in fact arranged in a non-linear profile with respects to second non-linear profile of the housing as depicted in figures 4A & 4B.

As to claim 4, the Appellant argues that Weinberg '946 has a telemetry coil that is eclipsed by a circuit board. However, as depicted in figure 4B, the telemetry coil 59 is uneclipsed or unobstructed by the circuit board since it protrudes from the circuit board or substrate 54.

As to claim 7, the Appellant argues that the housing of Weinberg '946 does not include a central portion and tapered portion. However, as depicted in figure 2, the rounded edges of the medical device housing constitute tapered portion. Since the coil extends towards the tapered portion of the medical device, the examiner considers the telemetry coil to be located in the tapered portion.

As to claim 8, again as stated above, the Appellant claims that Weinberg '946 does not meet the claim limitations. However, the examiner maintains that the specification does not provide sufficient antecedent basis or explanation of what is considered to be the second non-linear profile, the components are in fact arranged in a non-linear profile with respects to second non-linear profile of the housing as depicted in figures 4A & 4B.

As to claims 15 and 17-18, the Appellant argues that Weinberg '946 does not depict a feedthrough on a side surface that is orientated at a non-parallel, non-perpendicular angle relative to a major surface of the housing. The Appellant includes an annotated picture of figure 2 on page 16 to depict the surfaces. This is however, inconsistent with what the examiner stated in the rejection. The examiner states that the rounded bottom of the medical device (see page 6 of the final rejection 12/9/08) is considered to be the major surface. Since the surface is curved, the feedthroughs are thus located at a "non-parallel, non-perpendicular angle".

As to claims 22 and 29-31, the Appellant argues that Weinberg '946 has a telemetry coil that is eclipsed by a circuit board. As stated above in regards to claim 4, Weinberg '946 does depicted in figure 4B that the telemetry coil 59 is uneclipsed or unobstructed by the circuit board since it protrudes and is thus in a different plane from the circuit board or substrate 54.

As to claims 32 and 34-35, the Appellant argues that Weinberg '946 does not depict a feedthrough on a side surface that is orientated at a non-parallel, non-perpendicular angle relative to a major surface of the housing. As stated above in

regards to claims 15 and 17-18, the examiner states that the rounded bottom of the medical device (see page 6 of the final rejection 12/9/08) is considered to be the major surface. Since the surface is curved, the feedthroughs are thus located at a "non-parallel, non-perpendicular angle".

As to claims 1, 9 and 19-21, the Appellant states that the platform 36 and substrate 38 in Weinberg '260 do not constitute a circuit board, but does not provide any justification for the argument. Therefore, the examiner maintains that that the platform 36 and substrate 38 constitute a circuit board. Additionally the Appellant argues that the integrated circuit components are not arranged in a

Additionally the Appellant argues that the integrated circuits are not arranged in a non-linear profile that is based on a second non-linear profile of the housing. However, as previously states, the components are arranged in a non-linear fashion, see figure 3, and they are also arranged to fit into the housing that possesses non-linear angles (i.e. the rounded corners), therefore the components are arranged in a non-linear profile based on a second non-linear profile of the housing.

Also, in regards to the Appellant argument that Weinberg '260 does not place components in a non-linear profile that is based on a second non-linear profile, the examiner maintains that the specification does not provide sufficient antecedent basis or explanation of what is considered to be the second non-linear profile, the components are in fact arranged in a non-linear profile with respects to second non-linear profile of the housing.

As to claim 10, the Appellant argues that the heights of the components do not decrease on the circuit board of Weinberg '260. However, as indicated previously the heights of components 72 as depicted in figure 6 are smaller at the edge of the board and higher at the center. For example, the components farthest to the right and farthest to the left are shorter than the three in the center. Therefore, Weinberg '260 does meet the claim limitation.

As to claim 15, 18, 32 and 35, the Appellant argues that Weinberg '260 does not depict a feedthrough on a side surface that is orientated at a non-parallel, non-perpendicular angle relative to a major surface of the housing. However, since the main surface is curved, depicted in the replica of figure 5 in the final office action on 12/9/08, the feedthroughs are thus located at a "non-parallel, non-perpendicular angle".

Therefore, based on the arguments above and the reasons previously made of record the claims remain rejected under Weinberg '946 and Weinberg '260.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Alyssa Alter/

Examiner, Art Unit 3762

Art Unit: 3762

Conferees:

/Angela D Sykes/

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